

DeltaSOS Modeling Instructions

COMPUTER REQUIREMENTS

To run the DeltaSOS model, minimum recommendations include a 386DX-33 MHz IBM compatible with 2 MB RAM in extended memory, a math coprocessor, and a color monitor to view the graphics. The model, accompanying spreadsheets, and output files were created in Lotus 1-2-3 version 2.3 for DOS with WYSIWYG enabled. The total memory required is approximately 2.5 MB. According to Lotus technical support, the model will operate on any later version of Lotus 1-2-3 for DOS or on any version of Lotus 1-2-3 for Windows.

SETUP

The DeltaSOS model and accompanying spreadsheets are stored on two high density (1.44 MB) disks. All of the files must be transferred to a hard drive in the same directory to run the model. To create a new directory for the DeltaSOS model, at the DOS prompt (i.e., C:\), type `md C:\SOS` and then `cd SOS`. Insert Disk 1 into the drive and type `copy [drivename]:*. *`. Insert Disk 2 and repeat the copy command. To verify the transfer, type `dir`. The following files should be listed:

- DELTASOS.WK1
- DELTASOS.FMT
- INPUTS.WK1
- INPUTS.FMT
- MATRICES.WK1
- MATRICES.FMT
- SUMSOS.WK1
- SUMSOS.FMT

FILE OVERVIEW

The input files for the model are INPUTS.WK1, which has five different initial hydrologic scenarios, and MATRICES.WK1, which contains three different reference standards sets. The model is located in DELTASOS.WK1. SUMSOS.WK1 serves as an output processing spreadsheet for producing summary tables of results. Each of the spreadsheets have format files needed for WYSIWYG.

Input Spreadsheets

INPUTS.WK1

There is a "Directory of Contents" in the upper left-hand corner of the spreadsheet. The directory identifies range names and locations for the five different hydrologic scenarios, along with the respective time period available. Each scenario contains 11 different columns of data. Most cover the entire period from 1922 to 1991 with one row of data per month. Other hydrologic scenarios may be used as long as the size and format of the data match the above description. Also, the data should be in cubic feet per second (cfs). When using one of these scenarios, note the appropriate range name for future use while running the model. The five possible range names are:

- UNIMPAIR: Estimated unimpaired Delta inflows
- JSASIM: PROSIM estimated inflows and exports to satisfy D-1485
- HISTORIC: Actual Delta inflows and exports
- CASEA: DWRSIM estimated inflows and exports to satisfy D-1485 and winter-run criteria
- CASEB: DWRSIM estimated inflows and exports to satisfy D-1485 winter-run criteria and proposed EPA salinity standards.

MATRICES.WK1

The three different reference standards sets are located side by side in the spreadsheet beginning in the upper lefthand corner and can be referenced by the following range names:

- D-1485
- FED-1994
- WINTERRUN

Each set is composed of 9 columns by 397 rows of data. Similar to INPUTS.WK1, the reference standards may be altered or an entirely different standard may be used as input for the model as long as the format and size remain identical to those provided. The standard matrices become range names in DeltaSOS, and then must be located at exactly the correct position. Note the appropriate range name for future use while running the model.

Revising the Input Files

To revise one of the input files, copy one range to the right by typing / C(copy) [range-name] ← move the cursor to the right and press ←. Changes can then be made to the values.

Model Spreadsheet

DELTASOS.WK1 contains the actual model. It is arranged with varying background colors to distinguish each data and operation block. The upper lefthand corner of the spreadsheet contains a brief listing of the basic macros and also some of the major range names and their locations. These two lists can be used to help navigate through the spreadsheet for modifying data, checking results, and executing the various modeling functions.

Output File Spreadsheet

The SUMSOS.WK1 spreadsheet is used for output file processing. It is used to load an output file that generates a two- page summary table of the model results. This output processing spreadsheet can be modified as desired to provide different summary tables.

OPERATION OF THE MODEL

The DeltaSOS model calculates monthly Delta channel flows based on the choice of Delta hydrologic inputs and Delta standards inputs. It then generates summary tables, graphics, and output files (see Figure 1). All operations are controlled by macros. If you are using version 1.0 or 4.0 of Lotus for Windows, use the {Ctrl} instead of the {Alt} to begin macros.

To retrieve DELTASOS.WK1 in Lotus 1-2-3 version 2.3 type / F(file) R(etrieve) DELTASOS.WK1 ←. If different initial Delta hydrologic inputs or different reference standards are desired, the use either Alt-I or Alt-R. To import new initial hydrologic inputs from the INPUTS.WK1 file type Alt-I [range-name] ←. To import new reference standards from the MATRICES.WK1 file Alt-I [range-name] ←.

The parameter values may also be amended to change the allowable operations within the Delta. These can be found directly below the macro and range name listings under the title "USER DEFINED INPUTS FOR DELTA OPERATION" by pressing {PAGE DOWN} or {F5-GOTO} Parameters ←.

Once the input values have been adjusted, begin the model by typing Alt-Z. The computer will then present a series of questions. The questions and choices are as follows:

Question: What case is the model accessing?

Choices: Provide a brief descriptive phrase of the case being run. This will be used as a title for all figures and tables.

Question: Do you want to use results from the last simulation as model inputs?

Choices: Yes or no.

Question: What is the starting year for model simulations?

Choices: Input a year between 1922 and 1991.

Question: How many years would you like to simulate?

Choices: Input the number of years between 2 and 70.

Question: Do you want to compute monthly percentiles?

Choices: Yes or no.

After the questions are answered, the model will proceed to calculate the flows by water year for the specified period. If monthly percentiles were requested, their calculations will follow the flow calculations. The 70-year simulation will take approximately 5-10 minutes depending on your computer's capabilities.

RESULTS

Reviewing Monthly Results

Once the run has completed the model output results can be reviewed. To view the "MODEL OUTPUT" type {F5-Goto} V1←. Then, cursor down and to the right until the cursor is highlighting cell X12. Type the Lotus sequence of / W(orksheet) T(itle) B(oth). The output results can then be viewed without losing column headers or the date. Remember to type / W(orksheet) T(itle) C(lear) when finished reviewing the data.

Saving and Printing

After the model has completed all calculations, the output macros may be run. Results can be saved to files using **Alt-X** and **Alt-F** or printed using **Alt-M**, **Alt-C**, **Alt-S**, and **Alt-P**. The macro functions are:

Macro: **Alt-Z**
Function: Saves results in summary file

Macro: **Alt-F**
Function: Saves results for fish model

Macro: **Alt-M**
Function: Prints standard matrices

Macro: **Alt-C**
Function: Prints input coefficients

Macro: **Alt-S**
Function: Prints annual summaries

Macro: **Alt-P**
Function: Prints monthly percentiles

Graphics

In addition to these output macros, a series of named graphs have been created for interpretation of the results. To access the named graphs simply type the Lotus command sequence of **/ G(raph) N(ame) U(se)**. The named graphs fall into four general categories: monthly time series, annual summaries, monthly distributions, and flow splits.

Monthly Time Series

There are monthly time series graphs for outflow at Chipps, QWEST flows, Sacramento River/Diversion flows, and Delta storage. Each of the four time series is broken into three separate graphs for 1922-1945, 1945-1968, and 1968-1991. The graphs are named with a general description followed by the yearly period. The names of the graphs include the actual period (i.e., QWEST22-45).

Annual Summaries

Annual summaries include graphs for delta outflows and exports, causes of reduced exports, and annual delta storage. They have been titled with YR then an appropriate description (i.e., YROUTEX for annual delta outflows and exports).

Monthly Distributions

This is the largest set of graphs. Each one has been named by adding an MD prefix to a descriptive title (i.e., MD3MILE for 3-Mile Slough). Each graph contains a monthly cumulative distribution divided into minimum, maximum, and four intermediate ranges.

Flow Splits

There are graphs showing the channel flow splits for the Sacramento River and the San Joaquin River flows. Their respective graph names are SACFLOW and SJRFLOW.

The graphs can be viewed on the screen or saved to disk for printing (with Lotus PrintGraph). To save for printing type / G(raph) N(ame) U(se) [*graphname*] ← S(ave) [*filename*] ←. The graphs can then be printed using Lotus Printgraph. To enter Lotus PrintGraph exit from Lotus 123. At the DOS prompt and type LOTUS←. When the menu appears choose PrintGraph. Choose S(ettings) H(ardware) G(raphs-Directory) and type C:\SOS← followed by Q(uit) Q(uit). To choose which graphs to print select I(mage-Select). All saved graphs will then appear as a list. Use the space bar to select which graphs to print followed by ← to return to the main menu. To print choose G(o) and all selected graphs will be printed. Once the graphs have printed, Lotus 123 can be reentered by choosing E(xit) Y(es) 1(-2-3).